INSTALLATION GUIDE FOR
AO19 LOW ENERGY AUTOMATIC DOOR OPERATOR CONTROL MODULE

B1000S – SUPER SWING

User Manual

Date: July 3, 2008

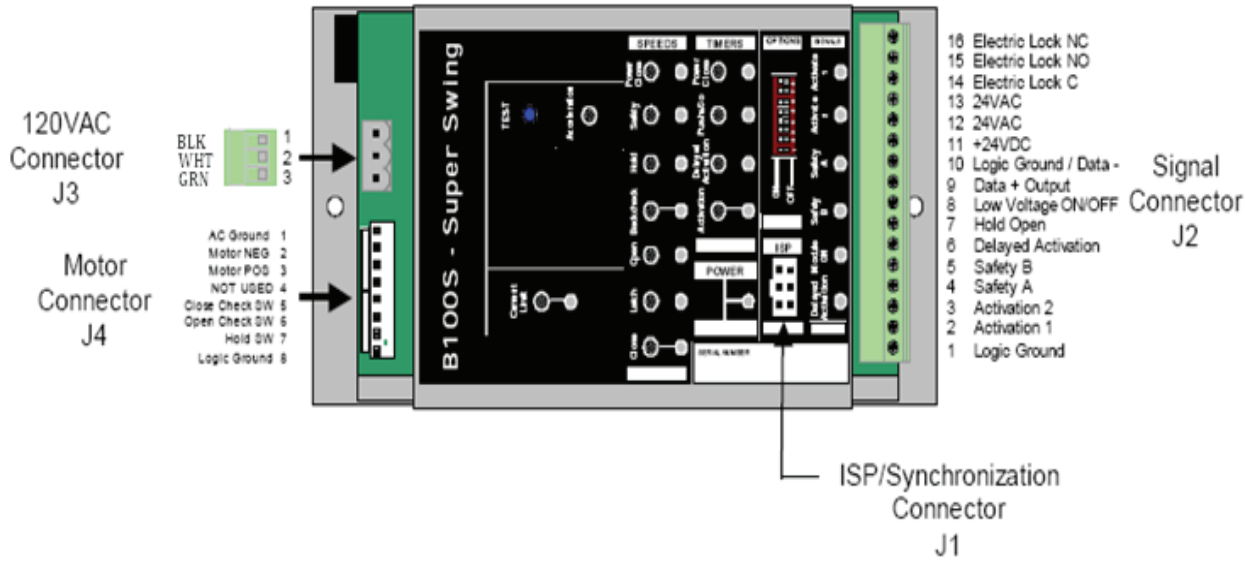
Note:
This product is a low energy automatic door operator and must be installed / serviced by a qualified person . The service technician must be familiar with the latest ANSI/BHMA A156.10/19 standards.

NEVER sacrifice the safe operation of the automatic door for an incomplete solution. Call the factory for technical support .

P/N 103188

302 Detex Drive, New Braunfels, TX 78130 www.detex.com
Technical assistance: 800-729-3839

AO19 Low Energy Automatic Door Operator Module Description / Connector Pinouts



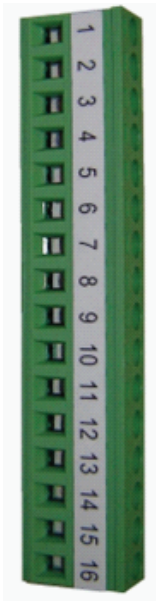
ISP / Synchronization Connector J 1

ISP – (In System Programmer) FACTORY USE ONLY

Synchronization – This connector is used to synchronize two modules together (For Dual door operator). Synchronization cable , part number 104785. When the synchronization cable is used , the activation switch (es) can be wired to only one module . All signals , except for the “Delayed Activation” , are shared between the two modules via the synchronization cable. When the “Delayed Activation Timer” expires , an activation signal is sent to mate control.

Note: Using the synchronization cable will not synchronize the door speeds . The speeds are kept separately .

Signal and Sensor Power Connector – P2



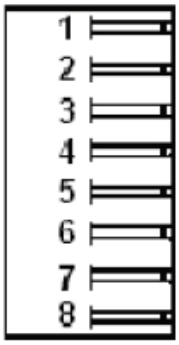
High - Low	Pin	Signal	Definition	
Low Energy	J2.1	Logic ground	Ground reference for signals and power.	
High Energy use and must conform to ANSI/BHMA A156.10	J2.2	Activation 1	This signal to ground will activate the operator. If the module is in the ON mode (Low voltage ON/OFF must be to ground) and no current fault is present. Note: Manual use of the door will not enable this input.	
	J2.3	Activation 2	This signal is active when the door is in motion. IF the module is in the ON mode (Low voltage ON/OFF must be to ground) and no current fault is present. Note: Manual use of the door will not enable this mode.	
	J2.4	Safety A	When the door is fully closed, this signal to ground will prevent an activation. During the opening cycle (with lockout option to OFF), the door will go to safety speed when this signal is to ground. During the closing cycle (with lockout position to OFF), the door will go to a very slow speed when this signal is to ground. When the door is fully opened, this signal to ground will prevent the door from entering the closing cycle.	
	J2.5	Safety B	When the door is fully closed, this signal to ground will prevent an activation. During the opening cycle, the door will go to safety speed when this signal is to ground. When the door is fully opened, this signal to ground will prevent the door from entering the closing cycle.	
	J2.6	Delayed Activation	This signal to ground will start the delayed activation timer. When the timer expires, an activation is generated. This signal is used to do door sequencing.	
	J2.7	Hold Open	This signal to ground will hold the door opened. If the module is in the ON mode, (Low voltage ON/OFF must be to ground) and no current fault is present.	
	J2.8	Low Voltage ON/OFF	This signal to ground enables the module. This module is disabled if this signal is not to ground.	
	J2.9	Data +	This is a signal output for sensor which requires door status information. When door is closed, Data output is 0V When door is in the opening cycle, Data output is 12V When door is closing (in motion), Data output is 8V	
	J2.10	Logic ground/Data -	Ground reference for signals and power	
	J2.11	(+24VDC)	DC power to sensors	(300mA max.)
	J2.12 J2.13	(24VAC) (24VAC)	AC power for sensor	
Low Energy ANSI/ BHMA A156 .19	J2.14	Electric lock switch (Common)	This connection is the common to drive an electric lock. (Active when electric lock option is set to ON)	
	J2.15	Electric lock switch (normally open)	This connection is the normally open (NO) to drive an electric lock (Active when electric lock option is set to ON)	
	J2.16	Electric lock switch (normally close)	This connection is the normally closed (NC) to drive an electric lock (Active when electric lock option is set to ON)	

Power Source (120VAC input connector) – J3

Pin	Signal Definition
J3.1	AC Line - BLK
J3.2	AC Neutral - WHT
J3.3	AC Ground - GRN

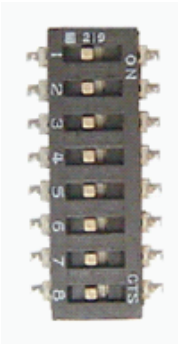
Power required is 120 VAC 50/60 Hz (Maximum current is 3Amperes

Motor Connector - J4



PIN	Signal	Definition
J4.1	Motor AC Ground	This connection is used to ground the motor body when applicable
J4.2	Motor NEG	This connection goes to the negative of the motor
J4.3	Motor POS	This connection goes to the positive of the motor
J4.4	Polarizing key (NC)	This is used to polarized the connector
J4.5	Close check switch	During the closing cycle, the operator is on latch speed when this signal is to ground
J4.6	Open check switch	During the opening cycle, the operator is on backcheck speed when this signal is to ground
J4.7	Hold switch	During the opening cycle, the operator is force to hold speed when this signal is to ground
J4.8	Logic ground	Ground reference for siganls

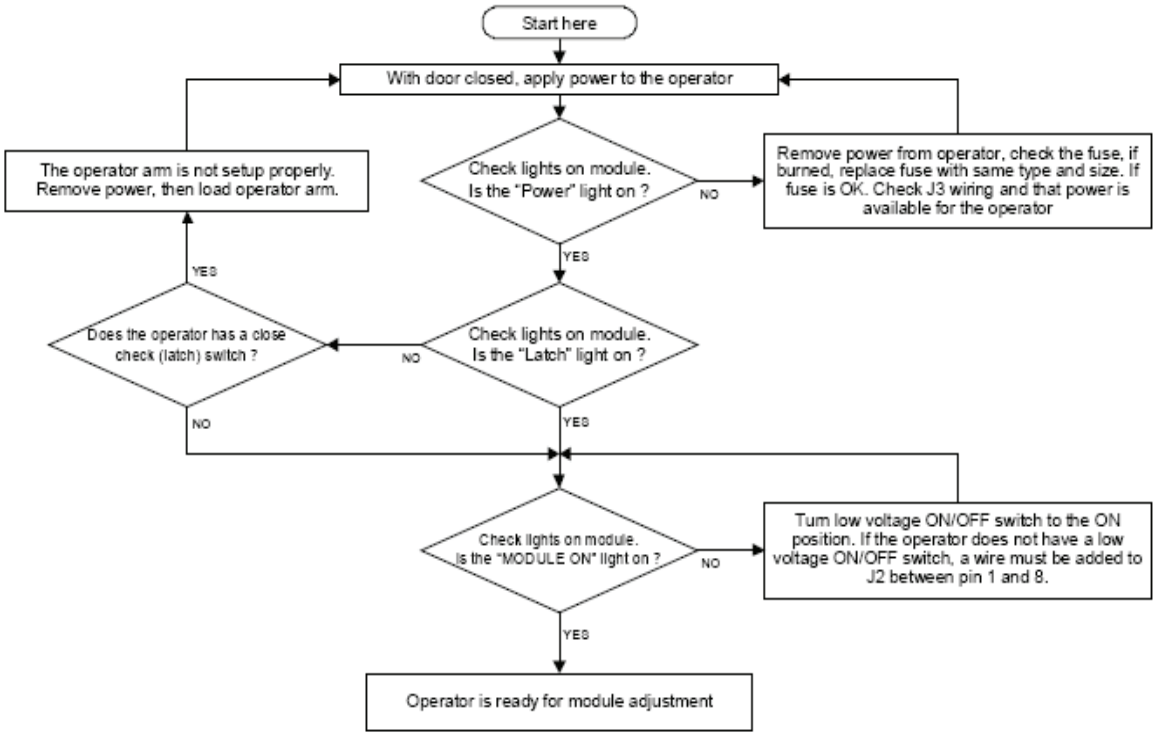
Option Switches Refer to ANSI/BHMA A156.10 / 19



Switch	Definition
1	Push & Go - For operator without a clutch (Use for handipcap operator ONLY) If this switch is set to ON, the operator is activated when door is manually pushed.
2	Lockout (Safety A) If this switch is set to ON, Safety A is disable during the opening oft the door until fully opened and during the closing until fully closed.
3	Electric Lock If this switch is set to ON, a small delay is added prior the door opening to allow to unlock the electric lock.
4	Power Close If this switch is set to ON, a reverse power is applied when the door stalls at the latch position.
5	Reverse on obstruction If this switch is set to ON, during a closing cycle, if the door stalls before the latch position, a re-activation is generated.
6	Push & Go - For operator with a clutch (Use for handipcap operator ONLY) If this switch is set to ON, the operator is activated when door is manually pushed outside the latch zone.
7	Door Seal (Power Close option must be set to ON) If this switch is set to ON, the operator will create a small resistance to prevent the door to open.
8	NOT USED

Before applying power to the operator, make all necessary connections (Refer to the wiring diagrams at the end on the document).

1 Installation Check


Start here
With door closed, apply power to the operator
Check lights on module. Is the "Power" light on ?
NO
Remove power from operator, check the fuse, if burned, replace fuse with same type and size. If fuse is OK. Check J3 wiring and that power is available for the operator
YES
The operator arm is not setup properly. Remove power, then load operator arm.
YES
Does the operator has a close check (latch) switch ?
NO
Check lights on module. Is the "Latch" light on ?
NO
YES
Check lights on module. Is the "MODULE ON" light on ?
NO
Turn low voltage ON/OFF switch to the ON position. If the operator does not have a low voltage ON/OFF switch, a wire must be added to J2 between pin 1 and 8.
YES
Operator is ready for module adjustment

2 Module Adjustment

All trimmers are at minimum values when turned fully counter clock wise and are at maximum values when turned fully clockwise. A speed or timer trimmer is active when the corresponding light (LED) is lit.

Current Limit Trimmer/Light – Obstruction Fault on opening

During an opening cycle, if the motor exceeds the allowed current limit defined by the current limit trimmer, a red light (LED) will lit, the opening cycle is cancelled and the operator is disabled for ten seconds.

Before beginning the adjustments, set the following:

1- Activation timer trimmer to ¼ turn from the minimum
2- Current Limit trimmer to the maximum (Fully clock wise)
3- Close and Latch Speed trimmers to minimum (Fully counter clock wise)
4- Set all option switches to the "OFF" position. If an electric lock is used, set option #3 to the "ON" position

2.1 Basic Adjustments

Activate the operator by pushing the test button (using a small screwdriver).

1. Adjust "OPEN" speed trimmer so that the door arrives at back-check in no greater that 3 seconds for Handicap applications.
2. Adjust "BACK-CHECK" speed trimmer so that door creeps to final open in no less than 2 seconds for Handicap applications.
3. Adjust "HOLD" force trimmer so that the power is just enough to hold door at full open without drifting closed.
4. Adjust "ACTIVATION" so that the door remains in the full open position for no less than 5 seconds for Handicap applications.
5. Adjust "CURRENT LIMIT" so that the door stops when it meets an obstruction during the opening cycle. Cycle test several times.
6. Adjust "ACCELERATION" so that upon activation during close cycle the door reverses smoothly. (NOT SUPPORTED AT THIS TIME)
7. Adjust "CLOSE" speed so that door closes no faster that 4 seconds to latch-check.
8. Adjust "LATCH" so that door closes the final 10 degrees without slamming.

2.2 Other Adjustments and Options

Refer to ANSI /BHMA A156.10 / 19 for more information

Safety Speed Trimmer

If a safety sensor is used, follow these steps to adjust the safety speed.

1- Push the test button to generate an open cycle.
2- During the open speed (Before backcheck) generate a safety signal
3- With the safety signal present, adjust the safety speed trimmer to achieve a creep or a stall motion of the door.

NOTE: If the safety sensor is a header mount type (Sensor will detect the door when the door swings in front of it), "Safety A" input must be used for that sensor and the lockout option must be set to the "ON" position (Option switch #2).

Push & Go Timer Trimmer

If Push & Go is needed set the option to the "ON" position.
The B100S has two types of Push & Go,

1- Option #1 Push & Go for operators without a clutch
2- Option #6 Push & Go for operators with a clutch (Operator must have a close check (latch) switch to use this option)

After the proper Push & Go option has been selected, manually push the door open. The controller will detect the door movement and will generate an open cycle. Adjust the Push & Go timer trimmer for the desired opening time for a Push & Go activity.

Refer to ANSI /BHMA A156.10 / 19 for more information

Power Close Timer and Speed Trimmers

If power close is needed, set the option #4 to the "ON" position. Follow these steps to adjust the length and strength of power close.

1- With option #4 set to the "ON" position, push the test button to generate an opening cycle.
2- When the door enters the closing cycle and reaches the latch area, stall the door open. When power close activates, adjust the power close speed trimmer for the desired strength.
3- Generate another opening cycle, when power close activates, set the length of the power close buy adjusting the power close timer trimmer. (1 - 6 seconds)

Note: The operator must have a close check (Latch) switch to use this feature.

Door Seal

If a positive pressure causes the door to slightly open, the door seal option #7 can be used. For option #7 Door Seal to work, option #4 Power Close must be set to "ON". If power close is not needed, then set the power close speed and timer trimmers to the minimum (Fully counter clock wise).

Reverse on Obstruction

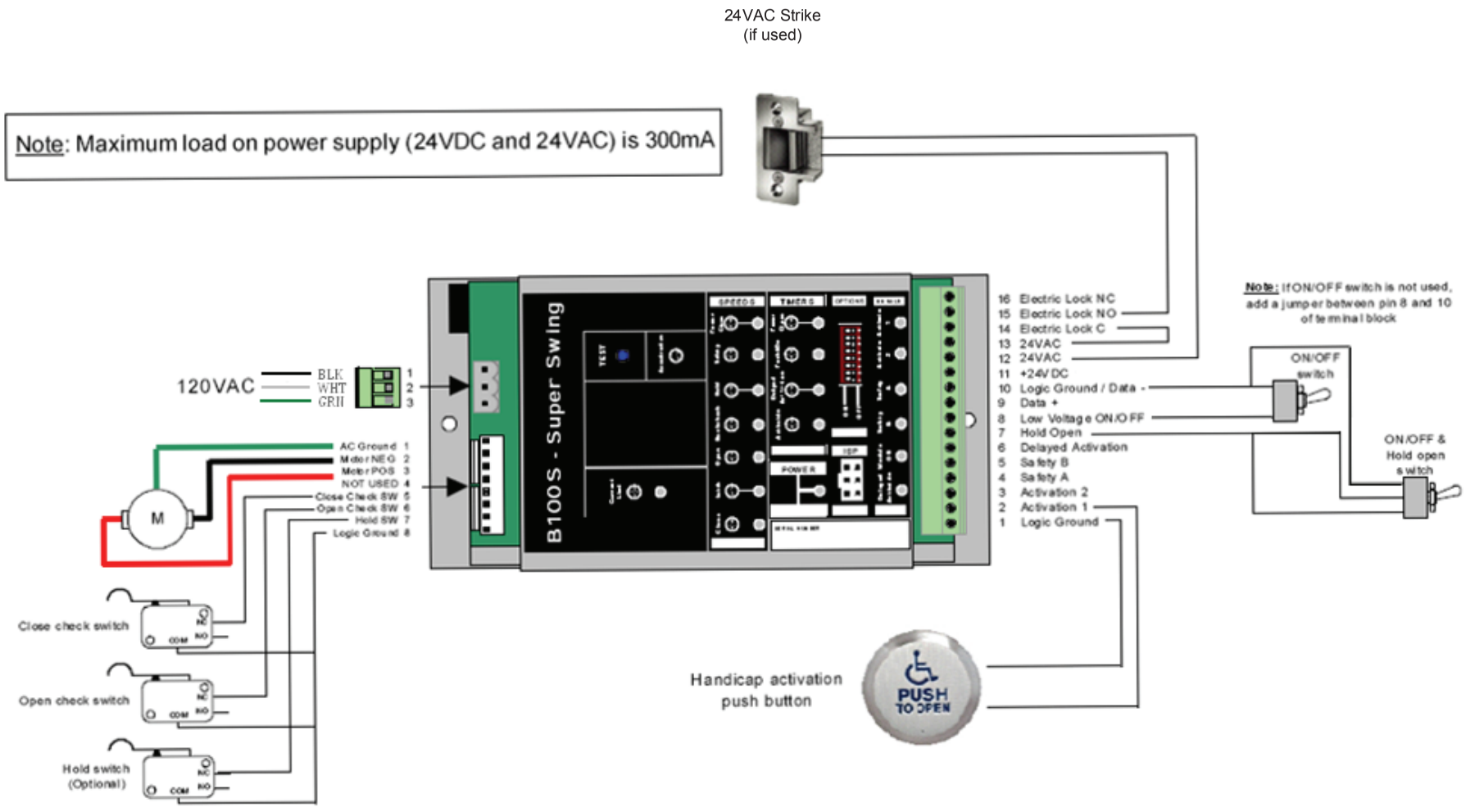
Set option #5 to the "ON" position to activate the reverse on obstruction option. When the door stalls between the backcheck and latch position, the controller will generate a re-opening cycle.
Note: The operator must have a close check (Latch) switch to use this feature.

Delayed Activation Timer

The activation signal of another operator can be connected to the delayed activation input to create door sequence operation. When used, adjust the delayed activation timer trimmer to create the proper delay.

For further information contact technical support.

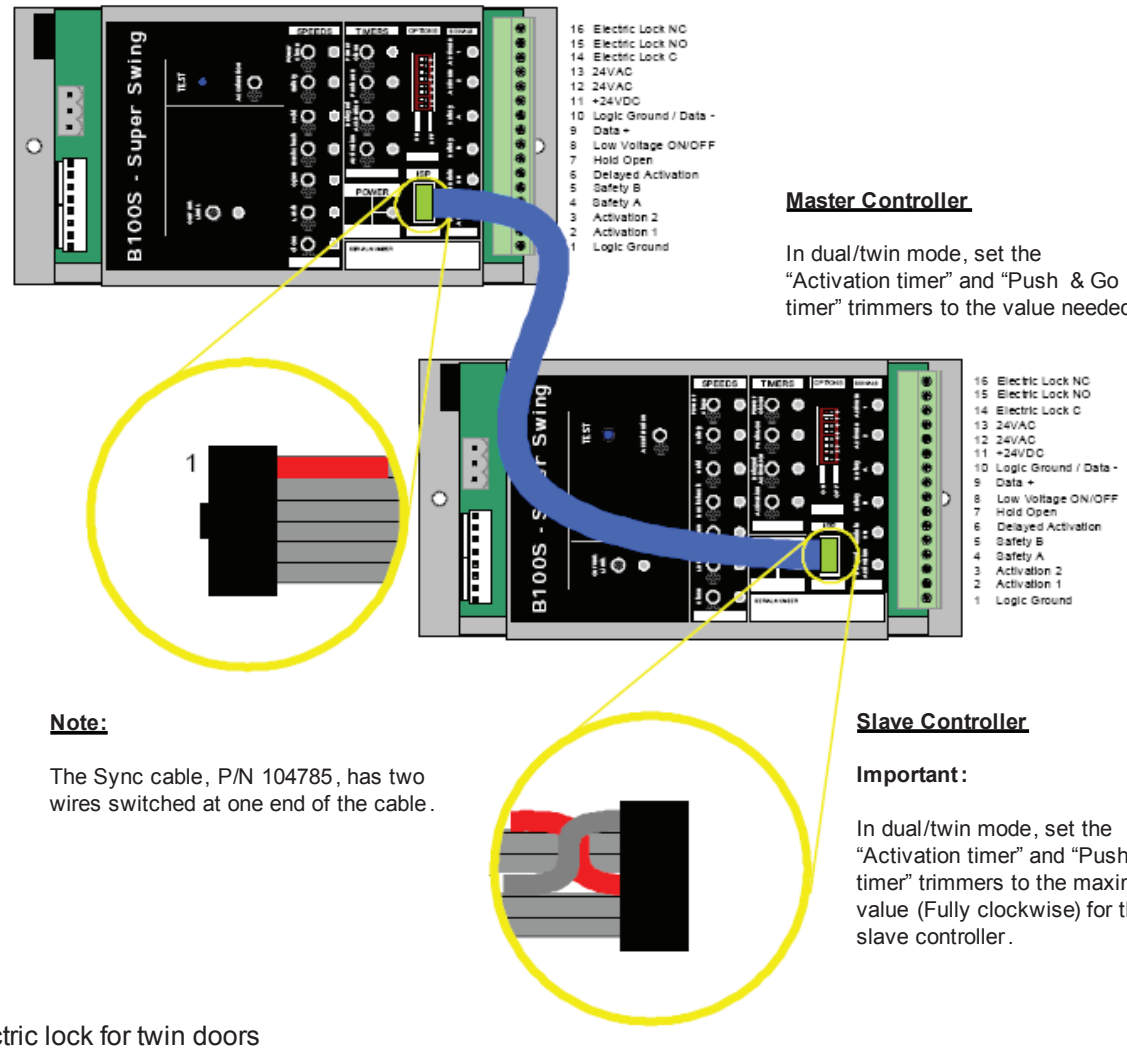
Point to Point Dwg for AO19 Low Energy Automatic Door Operator
Refer to ANSI/BHMA A156.10 / 19 for more information, or
Call factory at 1-800-729-3839



Dual Door Operator Sync Cable P /N 104785

For dual door operator, plug Sync Cable P/N 104785 as shown below. When using the Sync cable, only one control maybe wired to the switches. All signals are shared between the two controls using the sync cable, except for the “Delayed Activation” input. When the “Delayed Activation Timer” expires, an activation signal is sent to the mate control

Sensor power can be supplied by both controls for a total of 600mA.



Master Controller

In dual/twin mode, set the “Activation timer” and “Push & Go timer” trimmers to the value needed .

Note:

The Sync cable, P/N 104785, has two wires switched at one end of the cable.

Slave Controller

Important:

In dual/twin mode, set the “Activation timer” and “Push & Go timer” trimmers to the maximum value (Fully clockwise) for the slave controller.

Electric lock for twin doors

For one controller to control the electric lock (s), wire the electric lock(s) to one controller. Set the option #3 to “ON” for that controller only . Wire the activation signal(s) to the controller that is wired to the electric lock.

For two controllers to control the electric locks (to keep the electric locks independent), wire the first lock to the first controller, the second electric lock to the second controller. Set the option # 3 to “ON” on both controllers. Wire J2 pin 2 (Activation 1) of the first controller to J 2 pin 2 (Activation 1) of the second controller.